① Let's count the no. of basic operations in terms of the input size 'n'.

Alg - contains nested loops

Inner most loop contains the algorithm $x = x+1$ ↓ executed $n \times n$ times

$\therefore$ Runtime $T(n) = 1 + \sum_{i=1}^{n} \sum_{j=1}^{n}$

$$T(n) = 1 + \sum_{i=1}^{n} \left(\sum_{j=1}^{n} 1 \right)$$

$\therefore$ Inner summation $\Rightarrow$ constant

$$T(n) = 1 + \sum_{i=1}^{n} n$$

$$T(n) = 1 + n \sum_{i=1}^{n} 1 \qquad \because \sum_{i=1}^{n} 1 \Rightarrow n$$

$$T(n) = 1 \times n \times n$$

$$T(n) = 1 \times n^2$$

$\therefore$ Runtime of given algorithm is $O(n^2)$